

Summary

It is so made that a fluid passage can be abruptly opened with a very simple device and operations and also in a short period of time without causing water hammer.

The water hammerless opening device comprises an actuator operating type valve installed on the fluid passage, an electro-pneumatic conversion device to supply the 2-step actuator operating pressure P_a to the afore-mentioned actuator operating type valve, a vibration sensor removably fixed to the pipe passage on the upstream side of the actuator operating type valve, and a tuning box to which the vibration detecting signal P_r detected by the vibration sensor is inputted, through which the control signal S_c to control the step operating pressure P_s' of the afore-mentioned 2-step actuator operating pressure P_a is outputted to the electro-pneumatic conversion device, and with which the 2-step actuator operating pressure P_a of the step operating pressure P_s' which makes the vibration detecting signal P_r nearly zero is outputted from the electro-pneumatic conversion by adjusting said control signal S_c .